PHYS 403 – Solid State Physics

Semester: Spring 2005
Instructor: Alper Kiraz
Office: Sci 140
Phone: 1701
E-mail: akiraz@ku.edu.tr

Office Hours: Tu, B1 9:30 – 10:45 or by appointment
Lecture Hours: Mo, We B5 – 15:30 – 16:45
Room: Eng. B15

Course Description: Elementary crystal structure; the reciprocal lattice; lattice dynamics and phonons; thermal properties of materials; electron gas; Fermi- Dirac statistics and the Fermi surface; band theory, semiconductor physics and properties, semiconductor devices.

Textbook: Introduction to Solid State Physics, Seventh Edition, Charles Kittel, 1996 Wiley. ISBN: 0-471-11181-3

Grading:
1st Midterm 25%, (in class)
2nd Midterm 25%, (in class)
Homework 20%
Final or Project 30% (to be announced)

Attendance Policy: If a student misses more than 1/3 of the classes s/he automatically fails.

Homework Policy: You may discuss the problems, consult your teachers and use the library and internet. However, the final submitted work should be totally yours. You must ont submit work done in groups, transfer files or copy from a book.

Lecture Schedule:

Week		**Subject**
1	Feb. 7	Crystal Structure
2	Feb. 14	Crystal Structure
3	Feb. 21	Reciprocal Lattice
4	Feb. 28	X-Ray Scattering – Crystal Binding
5	Mar. 7	Lattice Vibrations (Classical)
6	Mar. 14	Lattice Vibations (Quantum)
7	Mar. 21	Free Electron Theory
8	Mar. 28	Electron Energy Band Theory
9	Apr. 4	SPRING BREAK
10	Apr. 11	Semiconductors
11	Apr. 18	Semiconductors
12	Apr. 25	Semiconductor Devices
13	May. 2	Fermi Surfaces
14	May. 9	Fermi Surfaces
15	May. 16	Plasmons, Polaritons, Polarons
16	May. 23	Plasmons, Polaritons, Polarons